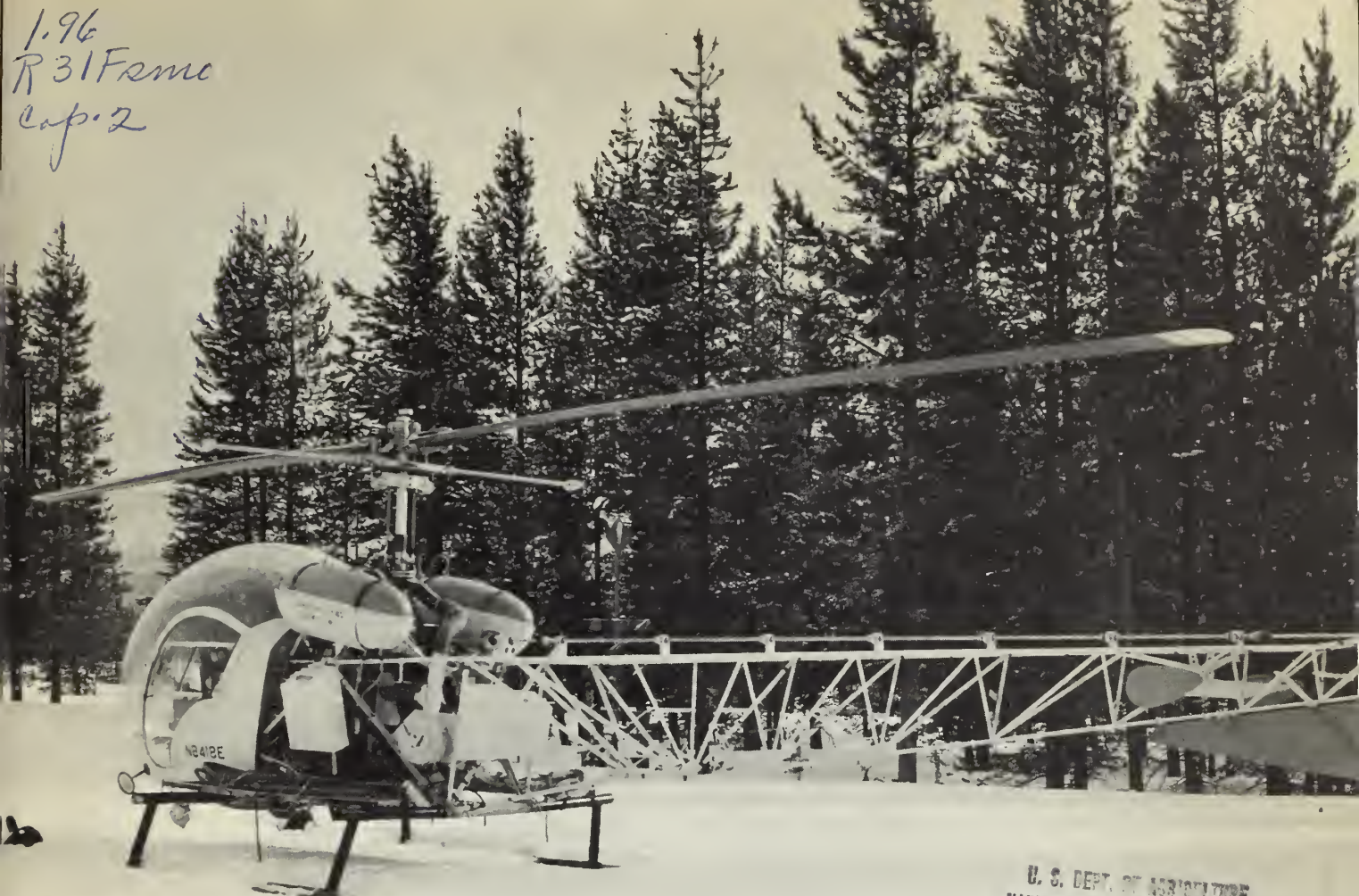


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MAR 18 1965

CURRENT SERIAL RECORDS

WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
MONTANA

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

||||||| AS OF |||||
MAR. 1, 1965

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Soil Conservation Service, 511 N.W. Broadway - Room 507, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN. 15 - APR. 1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

WATER SUPPLY OUTLOOK
FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS
for
MONTANA

Report Prepared

By

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Bozeman, Montana

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LIST OF COOPERATORS	Inside Back Cover

MONTANA
WATER SUPPLY OUTLOOK
as of
March 1, 1965

* * * * *
*
* Snow water equivalent at high elevations *
* is maximum or near maximum of record. *
* Median elevation snow cover is above aver- *
* age. Irrigation water supplies should be *
* excellent to good over the entire state. *
* Late season irrigation supplies should be *
* good, as the snow pack is very dense for *
* this time of year and will help to delay *
* snowmelt. *
*
* * * * *

West of the divide, snow cover in the Flathead, Clark Fork and Bitterroot drainages is 30 to 40 percent more than a year ago and 25 to 30 percent above average. In the Kootenai drainage, snow cover is 25 percent more than a year ago and about 10 percent above average. Most high elevation snow courses recorded maximum or near maximum of record water equivalent for this time of year.

East of the divide, snow pack is near record on the Missouri and Yellowstone headwaters. Measurements indicate water stored in the snow is 50 to 60 percent more than a year ago and about 50 percent above the 1948-62 average.

Along the main stem of the Missouri River, snow cover is 30 percent greater than a year ago and about 35 percent above average.

Streamflow for the April through September period, both east and west of the divide, is expected to be fifth to second highest in the past 30 years. One exception is the Kootenai River where near average flows are forecast as snow cover is below average in the headwaters of British Columbia, increasing to above average in Montana portions of the drainage.

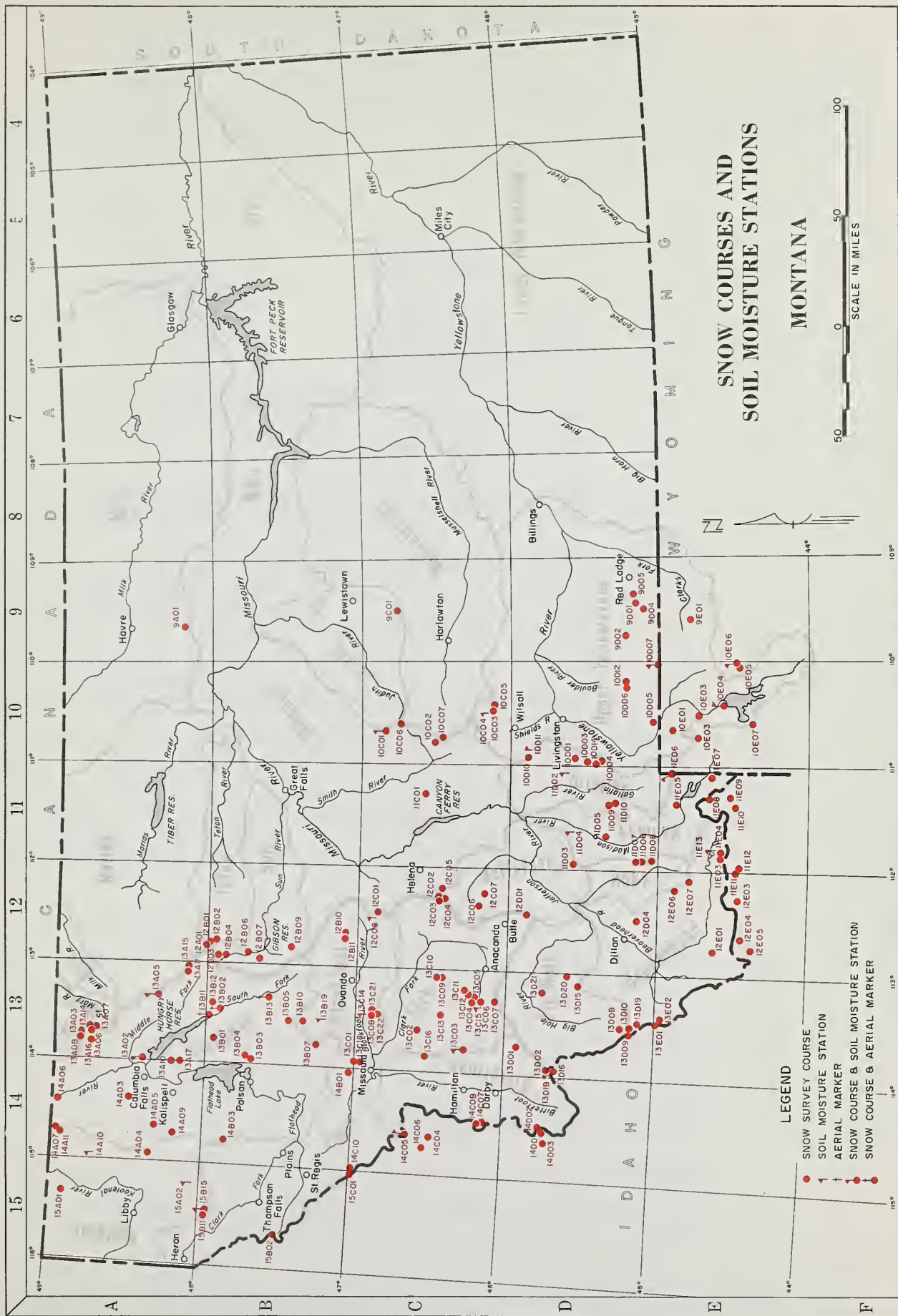
Although snow cover is heavy the potential for an abnormally high rate of runoff this spring is not much greater than in any other year. The snow pack is very dense and not as susceptible to fast runoff as would be a less dense pack. The magnitude of spring runoff is almost entirely dependent on temperatures during the snowmelt season. Whether or not high flows occur will depend on weather conditions during the last half of May and throughout June.

Soil moisture is generally near or below average at the higher elevations, near average at the median elevations, and average to above average at lower elevations west of the divide.

East of the divide, high elevation soil moisture is below average, near average at median elevations, and average or above average at low elevations.

Reservoir storage is generally near or above average for this time of year. Those responsible for reservoir regulation should give serious consideration to release of stored water where practical and feasible to assure control of spring runoff.

Two additional snow courses have been established. Saddle Mountain is located about two miles west of Lost Trail Pass and is in the Bitterroot drainage. South Fork Shields is located in the headwaters of the South Fork Shields River very near the divide of the Crazy Mountains in the Yellowstone River drainage.



1965 INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

SNOW COURSES

Drainage Basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates $\frac{1}{2}$	Mens. By $\frac{1}{2}$
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COLUMBIA RIVER BASIN

KOOTENAI RIVER	15811	5500	36	26N	31W	1956	3,4,5,5,5,6	2
	15815	5500	36	26N	31W	1956	3,4,5,5,5,6	2
	15815	5500	36	26N	31W	1956	3,4,5,5,5,6	2
	15815	5500	36	26N	31W	1956	3,4,5,5,5,6	2
	15815	5500	36	26N	31W	1956	3,4,5,5,5,6	2
	15815	5500	36	26N	31W	1956	3,4,5,5,5,6	2
	15815	5500	36	26N	31W	1956	3,4,5,5,5,6	2
FLATHEAD RIVER	14803	5150	11	24N	25W	1961	3,4,5	1,5
	14803	5150	11	24N	25W	1961	3,4,5	1,5
	14803	5150	11	24N	25W	1961	3,4,5	1,5
	14803	5150	11	24N	25W	1961	3,4,5	1,5
	14803	5150	11	24N	25W	1961	3,4,5	1,5
	14803	5150	11	24N	25W	1961	3,4,5	1,5
	14803	5150	11	24N	25W	1961	3,4,5	1,5

CLARK FORK RIVER

13613	7100	26	2N	15W	1959	3,4,5	1,2
13613	7100	26	2N	15W	1959	3,4,5	1,2
13613	7100	26	2N	15W	1959	3,4,5	1,2
13613	7100	26	2N	15W	1959	3,4,5	1,2
13613	7100	26	2N	15W	1959	3,4,5	1,2
13613	7100	26	2N	15W	1959	3,4,5	1,2
13613	7100	26	2N	15W	1959	3,4,5	1,2

BITTERROOT RIVER

13016	6400	28	9N	12W	1960	3,4,5	1
13016	6400	28	9N	12W	1960	3,4,5	1
13016	6400	28	9N	12W	1960	3,4,5	1
13016	6400	28	9N	12W	1960	3,4,5	1
13016	6400	28	9N	12W	1960	3,4,5	1
13016	6400	28	9N	12W	1960	3,4,5	1
13016	6400	28	9N	12W	1960	3,4,5	1

ST. MARY RIVER BASIN

13603	5660	1	35N	17W	1922	5	3,9
13603	5660	1	35N	17W	1922	5	3,9
13603	5660	1	35N	17W	1922	5	3,9
13603	5660	1	35N	17W	1922	5	3,9
13603	5660	1	35N	17W	1922	5	3,9
13603	5660	1	35N	17W	1922	5	3,9
13603	5660	1	35N	17W	1922	5	3,9

MISSOURI RIVER BASIN

13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1

BEAVERHEAD RIVER

13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1
13010	8600	12	8S	16W	1900	3,4,5	1

SOIL MOISTURE STATIONS

Drainage Basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates $\frac{1}{2}$	Mens. By $\frac{1}{2}$
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COLUMBIA RIVER BASIN

KOOTENAI RIVER	15819N	3800	5	25N	32W	1964	Monthly	2
	15819N	3800	5	25N	32W	1964	Monthly	2
	15819N	3800	5	25N	32W	1964	Monthly	2
FLATHEAD RIVER	13402N	5600	24	31N	19W	1956	Monthly	1
	13402N	5600	24	31N	19W	1956	Monthly	1
	13402N	5600	24	31N	19W	1956	Monthly	1

MISSOURI RIVER BASIN

BEAVERHEAD RIVER	11812N	6700	23	14S	2W	1962	Monthly	10
	11812N	6700	23	14S	2W	1962	Monthly	10
	11812N	6700	23	14S	2W	1962	Monthly	10

GALLATIN RIVER

11804N	4800	7	3S	1E	1961	Monthly	7
11804N	4800	7	3S	1E	1961	Monthly	7
11804N	4800	7	3S	1E	1961	Monthly	7

YELLOWSTONE RIVER

10011N	6020	32	2N	7E	1960	Monthly	1
10011N	6020	32	2N	7E	1960	Monthly	1
10011N	6020	32	2N	7E	1960	Monthly	1

1/ Nuncials 1,2,3,4,5,6 refer to January 1, February 1, March 1, April 1, May 1, May 15 and June 1.

2/ Nuncials refer to Agency that secures the snow survey as follows:

1. Soil Conservation Service
2. U. S. Forest Service
3. U. S. Geological Survey
4. Montana Power Company
5. U. S. Indian Service
6. National Park Service
7. Montana Experiment Station
8. Montana State Forestry School
9. Montana Water & Power Bureau
10. Bureau of Sport Fisheries & Wildlife

M - Soil Moisture

WATER SUPPLY FORECASTS

AS OF MARCH 1, 1965

(1000 Acre Feet)

		FORECAST	FORECAST	PERCENT	MEASURED FLOW	
NO.	RIVER AND FORECAST POINT	PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
COLUMBIA RIVER BASIN						
FISHER RIVER						
3020	Jennings (near)	Apr-Sept	335	105		318
		Apr-July	318	105		302
KOOTENAI RIVER						
3030	Libby (at)	Apr-Sept	8320	103	7802	8096
		Apr-July	7240	103	6745	7010
3050	Leonia (at)	Apr-Sept	9636	103	9037	9327
		Apr-July	8450	103	7842	8179
NORTH FORK FLATHEAD RIVER						
3555	Columbia Falls (near)	Apr-Sept	2330	115	2232	2027
		Apr-July	2120	115	2044	1844
		Apr-June	1800	115	1746	1565
MIDDLE FORK FLATHEAD RIVER						
3585	West Glacier (near)	Apr-Sept	2310	120	2440	1923
		Apr-July	2140	120	2260	1785
		Apr-June	1830	120	1929	1521
SOUTH FORK FLATHEAD RIVER						
3625	Columbia Falls (nr)(17)	Apr-Sept	2920	123	2595	2381
		Apr-July	2780	123	2431	2262
		Apr-June	2450	123	2112	1988
FLATHEAD RIVER						
3630	Columbia Falls (at)(17)	Apr-Sept	7750	119	7389	6497
		Apr-July	7180	119	6841	6028
		Apr-June	6170	119	5836	5185
3720	Polson (near)(18)	Apr-Sept	9380	120	8553	7778
		Apr-July	8700	120	7854	7229
		Apr-June	7450	120	6629	6188
SWAN RIVER						
3700	Big Fork (near)	Apr-Sept	850	122	706	694
		Apr-July	750	122	615	614
		Apr-June	615	122	482	503
BLACKFOOT RIVER						
3400	Bonner (near)	Apr-Sept	1350	130	1105	1036
		Apr-July	1215	130	1004	938
		Apr-June	1055	130	870	812
FLINT CREEK						
3301	Boulder Creek (below)(13)	Apr-Sept	88.5	121	88.7	73.0
		Apr-July	71.7	121	72.5	59.1
MIDDLE FORK ROCK CREEK						
3320	Philipsburg (near)	Apr-Sept	97.0	125	86.9	77.8
		Apr-July	88.5	125	77.9	70.5

(13) Sum, Flint Creek at Maxville and Boulder Creek at Maxville.

(17) Adjusted for storage in Hungry Horse Reservoir.

(18) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.

WATER SUPPLY FORECASTS

AS OF MARCH 1, 1965

		(1000 Acre Feet)				
NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT	MEASURED FLOW	
		PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
CLARK FORK RIVER						
3404	Milltown (above)(14)	Apr-Sept	990	123	1025	802
		Apr-July	870	123	902	705
		Apr-June	750	123	769	605
3405	Missoula (above)	Apr-Sept	2340	127	2130	1838
		Apr-July	2085	127	1906	1642
		Apr-June	1805	127	1639	1417
3530	Missoula (below)	Apr-Sept	4350	128	3861	3391
		Apr-July	3955	128	3483	3088
		Apr-June	3425	128	2935	2670
3545	St. Regis (at)	Apr-Sept	5880	127	5033	4642
		Apr-July	5380	127	4534	4230
		Apr-June	4660	127	3826	3671
3890	Plains (near)(18)	Apr-Sept	15600	122	13905	12793
		Apr-July	14300	122	12618	11736
		Apr-June	12300	122	10581	10077
3920	Whitehorse Rapids (at)(19)	Apr-Sept	17500	122		14398
		Apr-July	16000	122		13187
		Apr-June	13800	122		11318
WEST FORK BITTERROOT RIVER						
3425	Conner (near)(15)	Apr-Sept	225	125		179
		Apr-July	210	125		168
BITTERROOT RIVER						
3440	Darby (near)	Apr-Sept	750	129	730	582
		Apr-July	700	129	708	542
		Apr-June	617	129	600	478
3528	Missoula (at)(16)	Apr-Sept	2010	129	1731	1553
		Apr-July	1870	129	1577	1446
		Apr-June	1620	129	1296	1253
BLODGETT CREEK						
3475	Corvallis (near)	Apr-Sept	57.0	128		44.6
		Apr-July	54.5	128		42.6

- (14) Difference in observed flow, Clark Fork above Missoula & Blackfoot near Bonner.
 (15) Adjusted for storage in Painted Rocks Reservoir.
 (16) Difference in observed flow, Clark Fork above and below Missoula.
 (18) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.
 (19) Adjusted for storage in Hungry Horse, Flathead Lake and Noxon Rapids Reservoirs.

WATER SUPPLY FORECASTS

AS OF MARCH 1, 1965

		FORECAST		PERCENT	(1000 Acre Feet) MEASURED FLOW	
NO.	RIVER AND FORECAST POINT	PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
MISSOURI RIVER BASIN						
0110	RED ROCK RIVER Kennedy Ranch (at)	Apr-Sept	100	139	83.7	71.7
		Apr-July	92.2	139	76.8	66.2
0125	Monida (near)(1)	Apr-Sept	120	140	110	78.4
		Apr-July	103	140	108	73.7
0255	BIG HOLE RIVER Melrose (near)	Apr-Sept	950	132	849	718
		Apr-July	885	132	785	669
0330	BOULDER RIVER Boulder (near)	Apr-Sept	90.0	118	108	76.3
		Apr-July	86.2	118	103	73.0
0345	JEFFERSON RIVER Sappington (at)	Apr-Sept	1260	130	1294	974
		Apr-July	1140	130	1173	875
0375	MADISON RIVER West Yellowstone (near)	Apr-Sept	248	119	216	208
		Apr-July	187	119	166	157
0385	Grayling (near)(2)	Apr-Sept	510	121	474	420
		Apr-July	400	121	379	330
0410	McAllister (near)(3)	Apr-Sept	910	126	870	718
		Apr-July	730	126	712	576
0435	GALLATIN RIVER Gateway (near)	Apr-Sept	570	127	551	447
		Apr-July	484	127	475	381
0485	BRIDGER CREEK Bozeman (near)	Apr-Sept	25.8	130	23.5	19.9
		Apr-July	24.3	130	21.8	18.7
0500	HYALITE CREEK Bozeman (near)(4)	Apr-Sept	47.0	132	45.8	35.6
		Apr-July	40.7	132	40.1	30.8
0525	GALLATIN RIVER Logan (at)	Apr-Sept	640	137	621	467
		Apr-July	542	137	523	396

(1) Adjusted for storage in Lima Reservoir.

(2) Adjusted for storage in Hebgen Lake.

(3) Adjusted for storage in Hebgen and Ennis Lakes.

(4) Adjusted for storage in Middle Creek Reservoir.

WATER SUPPLY FORECASTS

AS OF MARCH 1, 1965

(1000 Acre Feet)

		FORECAST	FORECAST	PERCENT	MEASURED FLOW	
NO.	RIVER AND FORECAST POINT	PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
MISSOURI RIVER						
0545	Toston (at)(3)	Apr-Sept	2800	130	2694	2147
		Apr-July	2420	130	2364	1861
0908	Fort Benton (at)(5)	Apr-Sept	4280	129	4848	3319
		Apr-July	3640	129	4165	2825
1095	Virgelle (at)(6)	Apr-Sept	5220	127	6030	4116
		Apr-July	4520	127	5418	3557
1150	Zortman (near)(6)	Apr-Sept	5700	126	6697	4508
		Apr-July	4900	126	5967	3878
1320	Fort Peck Dam (below)(7)	Apr-Sept	5650	128		4422
		Apr-July	4980	128		3894
1770	Wolf Point (near)(7)	Apr-Sept	6250	128		4879
		Apr-July	5540	128		4317
3300	Williston, N.D.(nr)(8)	Apr-Sept	14700	133	13999	11059
		Apr-July	13100	133	12852	9828
PRICKLY PEAR CREEK						
0615	Clancy (near)	Apr-Sept	25.6	117	35.5	22.0
		Apr-July	22.6	117	30.6	19.2
SUN RIVER						
0786	Gibson Dam (at)(10)	Apr-Sept	750	123	737	610
		Apr-July	690	123	690	559
TWO MEDICINE CREEK						
0920	Browning (near)(20)	Apr-Sept	320	118	303	271
		Apr-July	307	118	289	260
BADGER CREEK						
0925	Browning (near)	Apr-Sept	165	115	190	143
		Apr-July	143	115	172	124
CUT BANK CREEK						
0990	Cut Bank (at)	Apr-Sept	156	110	141	142
		Apr-July	144	110	131	131
MARIAS RIVER						
0995	Shelby (near)(9)	Apr-Sept	750	115	814	651
		Apr-July	710	115	777	617
SOUTH FORK MUSSELSHELL R.						
1185	Martinsdale (above)	Apr-Sept	68.0	139	59.4	48.8
		Apr-July	65.0	139	57.6	46.6
MILK RIVER						
1350	Eastern Crossing (at)	Mar-Sept	300	110	283	272

- (3) Adjusted for storage in Hebgen and Ennis Lakes.
- (5) Adjusted for storage in Canyon Ferry Reservoir.
- (6) Adjusted for storage in Canyon Ferry and Tiber Reservoirs.
- (7) Adjusted for storage in Canyon Ferry, Tiber and Fort Peck Reservoirs.
- (8) Adjusted for storage in Canyon Ferry, Tiber, Fort Peck, Buffalo Bill and Boysen Reservoirs.
- (9) Adjusted for storage in Two Medicine, Four Horns, Lake Francis & Swift Reservoirs.
- (10) Adjusted for storage in Gibson Reservoir and diversions.
- (20) Adjusted for storage in Two Medicine Reservoir & diversions into Two Medicine Canal.

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* PROVISIONAL DATA FURNISHED BY U.S. GEOLOGICAL SURVEY

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).

WATER SUPPLY FORECASTS

AS OF MARCH 1, 1965

					(1000 Acre Feet)	
NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT	MEASURED FLOW	
		PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
YELLOWSTONE RIVER						
1915	Corwin Springs (at)	Apr-Sept	2320	123	2128	1877
		Apr-July	1940	123	1765	1572
1925	Livingston (near)	Apr-Sept	2660	125	2392	2127
		Apr-July	2220	125	1972	1770
2145	Billings	Apr-Sept	5100	130	4400	3913
		Apr-July	4380	130	3814	3362
3090	Miles City (at)(12)	Apr-Sept	7800	135		5778
		Apr-July	6850	135		5080
3295	Sidney (near)(12)	Apr-Sept	8000	136		5850
		Apr-July	7150	136		5230
SHIELDS RIVER						
1935	Clyde Park (at)	Apr-Sept	145	146	133	99.0
		Apr-July	135	146	121	92.2
BOULDER RIVER						
2000	Big Timber (at)	Apr-Sept	470	137	375	343
		Apr-July	440	137	351	321
STILLWATER RIVER						
2050	Absarokee (near)(11)	Apr-Sept	750	136	553	552
		Apr-July	630	136	486	465
CLARKS FORK RIVER						
2075	Chance (at)	Apr-Sept	700	120	602	583
		Apr-July	635	120	561	528
2085	Edgar (at)	Apr-Sept	735	120	651	609
		Apr-July	650	120	603	538
ROCK CREEK						
2095	Red Lodge (near)	Apr-Sept	134	130	96.7	103
		Apr-July	103	130	78.7	79.6

(11) Adjusted for storage in Mystic Lake.

(12) Adjusted for storage in Buffalo Bill and Boysen Reservoirs.

SNOW SURVEY DATA

AS OF MARCH 1, 1965

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

KOOTENAI RIVER

15B11	Baree Creek	5500	3/1	122	45.8	31.8	-
15B15	Baree Trail	3800	3/1	34	12.2	-	-
14A04	Brush Creek	5000	3/1	38	13.2	11.8	12.7*
BC 10	Fernie	3500	2/26	36	12.6	8.5	9.0
BC 12A	Field	4200	2/28	30	8.2	4.2	5.8
BC 11	Glacier	4100	3/1	72	21.7	23.4	24.0*
14A11	Graves Creek	4300	2/25	56	19.9	-	-
BC 43	Gray Creek	5100	2/28	61	16.9	14.7	16.7*
BC 33	Kicking Horse	5400	2/28	58	16.4	11.8	13.3
BC 20B	Kimberley	3800	3/1	32	10.5	6.7	8.4
BC 32	Marble Canyon	5000	3/1	59	13.7	11.2	13.5
BC 10B	Morrissey Ridge	6100	3/2	84	32.5	-	-
BC 10A	New Fernie	4100	2/26	53	19.1	14.0	13.2*
15A01	Red Mountain	6000	2/26	60	20.0	12.6	18.0
BC 8A	Sinclair Pass	4500	3/1	26	5.1	4.3	5.8*
BC 20A	Sullivan Mine	5100	2/26	43	12.5	9.9	13.4
BC 41	Upper Elk River	4400	2/22	27	9.0	-	7.9
14A07	Weasel Divide	5450	2/25	92	35.4	30.7	30.4*

FLATHEAD RIVER

14B03	Bassoo Peak	5150	2/23	38	10.0	8.6	11.1*
13A11	Beaver Lake	5900	3/1	79	25.7	17.9	-
13B03	Big Creek	6750	2/25	121	48.4	35.6	38.5
13A17	Camp Misery	6400	2/24	140	54.2	37.0	-
13A02	Desert Mountain	5600	2/23	56	20.0	12.2	14.1*
13B04	Fatty Creek	5500	2/25	69	23.4	20.4	-
14A09	Griffin Creek Divide	5150	2/24	40	12.6	10.0	12.4*
13B12	Gunsight Lake	6300	3/2	123	45.7	30.2	-
14A03	Hell Roaring Divide	5770	2/26	94	35.3	23.8	26.8*
13B13	Holbrook	4530	3/1	38	12.7	9.8	10.2*
14A06	Kishenehn	3890	3/1	40	13.2	8.1	9.9
14A05	Logan Creek	4300	3/1	32	8.8	7.4	8.8*
13A05	Marias Pass	5250	2/25	65	21.0	12.0	17.3
13A16	Mineral Creek	4000	2/28	70	26.1	18.4	19.8
13B07	North Fork Jocko	6330	2/26	130	49.8	41.0	39.8
13B02	Spotted Bear Mountain	7000	3/2	53	19.7	11.3	14.6
13A10	Strawberry Lake	5600	3/4	125	48.6	32.2	35.3*
13B01	Trinkus Lake	6500	3/4	131	48.9	35.3	36.3*
13B11	Twin Creeks	3580	3/2	40	14.6	12.2	12.4*
13B05	Upper Holland Lake	7000	3/1	117	39.1	28.0	29.8*

SNOW SURVEY DATA

AS OF MARCH 1, 1965

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

CLARK FORK RIVER

13C13	Black Pine	7100	2/25	48	16.4	12.6	11.3*
12B10	Copper Creek	5700	2/23	50	16.8	13.1	-
12B11	Cotter Mine	6250	2/23	56	20.0	13.6	-
13B10	Coyote Hill	4200	2/26	43	13.4	8.7	10.2
13C09	El Dorado Mine	7800	2/23	74	25.2	18.4	17.6*
13C11	Fred Burr Pass	8000	2/26	85	33.0	20.3	23.8*
13C10	Gold Creek Lake	7200	2/23	58	18.4	14.4	13.4*
14C10	Heart Lake Trail	4800	2/25	68	23.8	-	-
15C01	Hoodoo Creek	6200	2/25	133	52.3	37.4	45.3*
13C04	Intergaard	6450	3/1	33	10.0	7.2	7.2
15B02	Lookout	5250	2/25	97	33.5	31.7	34.8*
13C21	Lubrecht Forest No. 3	5450	2/27	28	8.2	8.0	7.4*
13C22	Lubrecht Forest No. 4	4650	2/27	15	4.2	4.8	3.9*
13C08	Lubrecht Forest No. 6	4040	2/27	16	5.0	5.4	4.6*
13C12	Red Lion	7100	2/26	62	21.8	13.0	13.8*
13C03	Skalkaho Summit	7260	2/25	86	32.6	20.5	22.5*
13C02	Slide Rock Mountain	7100	2/24	54	17.6	13.0	12.6*
13C05	Southern Cross	6500	3/1	28	7.7	7.2	5.6
13C18	Spring Gulch	6000	2/28	57	16.0	11.1	10.5*
13C07	Storm Lake	7780	2/26	48	16.4	11.4	11.7*
13C06	Stuart Mill	6500	3/1	28	7.8	7.3	5.9
13C01	Stuart Mountain	7400	2/28	92	32.7	24.5	26.5*
14B01	TV Mountain	6800	2/26	62	21.7	14.0	14.9*

BITTERROOT RIVER

13C16	Ambrose	6480	2/24	48	14.8	12.5	12.1*
13D01	East Fork R.S.	5400	2/26	32	9.4	7.0	7.1*
13D02	Gibbons Pass	7100	2/25	80	27.5	18.8	21.0
14C05	Lolo Pass	5230	2/25	94	34.0	28.4	32.2*
14C07	Lost Horse	5940	3/1	102	36.1	30.9	30.3*
13D16	Moose Creek	6200	2/25	65	21.0	16.2	14.9
14D02	Nez Perce Camp	5580	2/23	63	18.4	16.0	12.8*
14D01	Nez Perce Pass	6570	2/23	69	20.8	16.0	14.8*
13D22	Saddle Mountain	7940	2/17	86	30.0	-	-
14C04	Savage Pass	6600	2/26	80	29.4	22.4	25.0*
14C08	Twin Lakes	6510	3/1	133	47.0	36.4	39.5*

SNOW SURVEY DATA

AS OF MARCH 1, 1965

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

MISSOURI RIVER BASIN

BEAVERHEAD RIVER

13D10	Bloody Dick	7600	2/24	47	15.4	8.6	9.6
12E03	Camp Creek	6800	2/26	40	13.1	5.7	8.7
12D04	Carter Creek	7400	2/28	23	4.4	3.6	-
13D15	Elk Horn Springs	7800	2/26	44	13.4	7.1	8.8
13D09	Gold Stone	8100	2/24	57	19.7	10.8	12.4
11E12	Kilgore	6200	2/26	35	11.9	6.9	8.8
11E04	Lakeview Canyon	6930	2/24	52	18.2	7.0	9.6
11E03	Lakeview Ridge	7400	2/24	46	16.2	6.6	8.1
13E01	Lemhi Pass	7480	2/23	46	14.6	6.8	7.1
13E02	Trail Creek	7090	2/23	41	12.2	5.7	6.4
12E01	White Pine Ridge	8850	3/2	25	6.5	3.7	4.4

RUBY RIVER

11D08	Clover Meadow	8600	3/1	62	21.7	12.6	-
12E07	Divide	7900	3/2	48	15.3	7.8	-
12E06	Notch	8500	3/2	53	17.4	10.8	-

BIG HOLE RIVER

13D20	Abundance Lake	8800	3/1	67	24.1	15.0	-
13D19	Darkhorse Lake	8600	3/2	89	34.6	22.1	-
13D21	Foolhen	8280	3/1	62	22.4	12.4	-
13D08	Jahnke Creek	7340	2/24	42	13.0	7.8	8.8

JEFFERSON RIVER

12C07	Berry Meadow	7300	3/1	29	8.0	7.2	-
12C06	Picnic Grounds	6500	3/1	20	4.4	4.2	4.2*
12D01	Pipestone Pass	7200	2/26	20	5.2	4.0	4.5

SNOW SURVEY DATA

AS OF MARCH 1, 1965

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

MADISON RIVER

11E09	Big Springs	6500	2/24	69	24.6	14.9	19.6
11D07	Call Road	8050	3/1	43	12.8	9.0	-
11D06	Crockett Lake	8400	3/1	42	12.6	8.6	-
11E05	Hebgen Dam	6550	2/25	47	14.2	9.8	10.8
11E10	Island Park	6315	2/24	60	20.4	11.1	15.3
11D05	Jack Creek	7500	2/26	23	6.4	5.2	-
10E02	Norris Basin	7500	3/1	48	14.1	8.4	9.0*
11D03	North Meadow	7500	2/25	38	11.4	5.0	-
11E08	Valley View	6500	2/24	64	24.0	14.8	13.2
11E07	West Yellowstone	6700	2/25	46	15.0	8.3	10.6

GALLATIN RIVER

10D14	Arch Falls	7350	2/27	46	14.8	10.4	-
11D09	Bear Basin	8150	3/2	67	22.6	17.8	-
10D04	Devil's Slide	8100	2/27	73	26.3	20.2	17.4
10D03	Hood Meadow	6600	2/27	39	11.6	8.9	7.6
11D10	Little Park	7400	3/2	59	18.6	14.2	-
10D01	New World	6700	2/26	40	11.6	11.4	8.6
11E06	Twenty-One Mile	7150	3/2	70	27.0	14.1	15.8

MISSOURI RIVER (Main Stem)

11C01	Boulder Mountain	7950	2/23	54	17.9	16.2	-
12C05	Chessman Reservoir	6200	3/2	16	3.8	6.3	4.0
10C07	Elk Peak	8000	2/24	60	19.5	15.6	-
10C02	Grasshopper	7000	2/24	26	6.6	7.0	4.3
10C01	Kings Hill	7500	2/28	48	15.3	12.7	11.0
9A01	Rocky Boy	5200	2/26	18	4.6	4.2	4.2
12C01	Stemple Pass	6900	3/3	42	11.9	10.0	9.2
12C02	Ten Mile Lower	6250	3/2	30	7.7	8.0	6.3
12C03	Ten Mile Middle	6800	3/1	45	12.1	10.7	9.1
12C04	Ten Mile Upper	8000	3/1	51	16.3	14.4	11.7

SUN-TETON-MARIAS RIVERS

13A15	Badger Pass	6900	3/1	108	38.6	29.4	-
12B06	Cabin Creek	5400	3/1	32	9.7	4.9	6.8*
12B09	Five-Bull	5600	2/24	33	9.8	5.4	6.1*
12A01	Freight Creek	6000	2/25	55	20.4	11.2	14.5

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NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF MARCH 1, 1965

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE
NO.	NAME	ELEVATION					

SUN-TETON-MARIAS RIVERS - cont'd

12B07	Goat Mountain	7000	2/28	50	13.5	9.8	10.6
12B01	West Fork	6000	2/25	56	21.8	9.4	13.4*
12B04	Wrong Creek	5700	3/1	56	17.8	13.5	14.5*
12B03	Wrong Ridge	6800	3/1	73	26.0	17.3	19.6*

JUDITH RIVER

9C01	Crystal Lake	6100	3/3	44	13.7	14.4	10.5
10C06	Spur Park	8000	2/25	69	23.4	18.8	-

MILK RIVER (Cypress Hills)

10AA2	Cress Day B	3450	3/1	8	2.8	1.2	1.3*
9AA1	Cypress Park C	4000	3/2	7	1.9	4.4	4.1*
10AA1	Elkwater Lake A	4100	3/1	7	1.9	1.9	2.0*
7AA1	Val Marie D	2700	3/3	11	3.0	0.1	1.1*

UPPER YELLOWSTONE RIVER

10C05	Bald Ridge	7500	3/1	48	15.6	11.4	9.2*
9D01	Camp Senia	7890	3/2	28	5.8	5.2	4.8*
10E03	Canyon	7750	2/28	65	23.4	12.4	13.1
10D05	Crevice Mountain	8400	3/1	43	11.8	8.1	7.5
10E06	East Entrance	7000	3/1	40	12.1	8.3	10.4*
9D05	Grizzly Peak	8400	3/1	60	16.8	9.7	-
10D06	Independence	8000	2/28	69	21.6	15.8	15.6*
10E04	Lake Camp	7850	2/28	48	13.2	6.3	9.0
9E01	Lodgepole	8200	3/1	39	9.9	9.1	8.6*
10E01	Lupine Creek	7300	3/1	46	14.2	8.2	9.5
10D12	Monument Peak	9000	2/28	91	33.6	21.8	18.1*
10D07	Northeast Entrance	7400	2/27	41	13.1	7.4	7.5
10C03	Porcupine R.S.	6500	3/1	33	9.3	8.4	6.3
10D10	Sacajawea	6550	2/26	48	16.4	11.2	11.1*
10C08	South Fork Shields	8400	3/1	81	29.4	-	-
10E05	Sylvan Pass	7100	3/1	52	16.8	10.1	12.6
10E07	Thumb Divide	7900	2/24	79	29.3	14.0	20.0
9D04	Timberline Creek	8850	3/2	61	19.5	12.2	10.9*
9D02	West Rosebud	7500	3/2	52	16.9	6.5	-

SOIL MOISTURE DATA

AS OF MARCH 1, 1965

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	**AVERAGE

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5	3/2	6.3	-	-
14A10M	Murphy Lake R.S.	3000	48	22.6	3/1	21.8	-	-
15A02M	Raven R.S.	3050	48	23.0	3/3	21.9	-	-

Flathead

13A02M	Desert Mountain	5600	54	8.4	2/23	7.5	5.8	7.0
13A05M	Marias Pass	5250	54	6.5	3/1	5.8	4.4	5.3

Clark Fork

13C15M	Georgetown Lake	6450	48	9.0*	2/26	2.8	2.5	-
13B19M	Seeley Lake	4030	48	11.9*			1.9	-
13C02M	Skalkaho Summit	7260	48	10.8	2/25	8.9	-	-

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	2/26	5.5	5.5	-
14C05M	Lolo Pass	5250	48	10.6*	2/25	7.4	5.3	-

MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3	3/3	5.9	8.2	-
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Madison

10D04M	Red Bluff	4800	40	4.7	3/4	2.3	1.9	-
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Gallatin

11D02M	College Site	4856	54	14.5	3/2	10.0	6.9	9.2
11E06M	Twenty-One Mile	7150	48	8.8	2/28	1.5	3.8	-

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	2/25	7.8	7.6	-
12C08M	Stemple Pass	6350	48	5.9	2/25	4.2	3.9	-

Yellowstone

10D11M	Battle Ridge	6020	48	17.6*	3/1	15.6	9.3	-
10D07M	Northeast Entrance	7350	48	9.4	2/27	5.9	7.8	-

**AVERAGE FOR PERIOD OF RECORD *Revised

RESERVOIR STORAGE DATA

AS OF FEBRUARY 28, 1965

(1000 Acre Feet)

			USEABLE STORAGE			
BASIN	RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVERAGE	
COLUMBIA RIVER BASIN						
Flathead	Hungry Horse	3,428.0	2,370.0	2,297.0	2,436.3**	
	Flathead Lake	1,791.0	1,143.0	1,161.0	844.6	
	Camas 1/	45.2	20.3	18.7	32.2	
	Mission Valley 2/	100.3	39.3	19.6	34.5	
Clark Fork	Georgetown Lake	31.0	26.9	27.4	23.2	
Bitterroot	Noxon Rapids	334.6		282.9	-	
	Como	34.9	15.4	7.8	11.8	
	Painted Rocks	31.7		21.8	13.5**	
MISSOURI RIVER BASIN						
Beaverhead	Clark Canyon	255.6	74.2	-	-	
	Lima	84.0	45.7	-	26.1	
Ruby	Ruby	38.8	-	-	23.0**	
Madison	Hebgen Lake	384.8	220.8	211.3	179.1	
	Ennis Lake	41.0	33.5	39.2	37.3	
Gallatin	Middle Creek	8.0	3.9	3.0	3.6**	
Missouri	Canyon Ferry	2,043.0	1,763.0	1,737.0	1,514.9**	
	Hauser & Helena	61.9	61.3	56.2	53.9	
	Lake Helena	10.4	10.2	8.4	7.8	
	Holter Lake	81.9	40.1	22.5	50.6	
	Smith River	10.7	8.7	7.6	5.6**	
	Ackley Lake	5.8		-	3.8	
	Durand	7.0	6.3	4.2	4.2**	
	Martinsdale	23.1	7.5	8.0	8.1**	
	Deadman's Basin	72.2	48.0	51.6	39.8**	
	Fort Peck	19,410.0	15,220.0	11,550.0	10,595.1	
	Sun	Gibson	105.0	48.0	17.3	58.5
		Willow Creek	32.3	15.8	21.1	18.4
		Pishkun	32.0	17.4	17.2	19.7
Marias	Lower Two Medicine	16.6	-	-	0.0	
	Four Horns	19.2		-	10.4	
	Swift	30.0	-	10.8	22.0	
	Lake Francis	112.0		33.5	91.8	
	Tiber	1,313.0	671.0	646.6	629.4**	
Milk	Fresno	127.2	62.8	36.4	58.5	
	Nelson	66.8	35.6	31.5	35.4	
	Lake Sherburne	66.1		17.1	21.6	
Yellowstone	Mystic Lake	20.8	8.5	8.6	7.8	
	Tongue River	68.0		-	11.1**	
	Cooney	27.5	14.8	17.9	13.6**	

1/ Sum of four small reservoirs on west side of Flathead Lake.

2/ Sum of eight small reservoirs in Mission Valley not including Jocko Lake.

Agencies Cooperating in Collecting Data Contained in this Bulletin

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Region I, Missoula, Montana

U. S. Geological Survey
Helena, Montana

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Omaha, Nebraska

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana

U. S. Bureau of Sports Fisheries
and Wildlife
Red Rock Lakes Refuge
Monida, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

Montana Power Company
Butte, Montana

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North Montana Branch Station
Havre, Montana

State Water Conservation Board
Helena, Montana

National Park Service
Yellowstone National Park
Glacier National Park

Montana Experiment Station
Montana State College
Bozeman, Montana

Bonneville Power Administration
Portland, Oregon

Montana State University
School of Forestry
Missoula, Montana

Soil Conservation Service
Montana, Wyoming, Idaho

Soil and Water Conservation Districts
Montana Counties

Johnson Flying Service, Inc.
Missoula, Montana

Water Rights Branch, Dept.
of Lands and Forests
Victoria, British Columbia

Department of Northern Affairs
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